

runnel joining the Mullum Mullum Creek, Ringwood, near Melbourne.

Remarks.—It is remarkably active; usual form of locomotion running, but can spring forcibly forwards and also swim easily. It shuns strong light.

References.

- G. M. THOMSON.—“Description of a Remarkable Schizopod.” *Trans. Linn. Soc., Zool.* (2) vi. 3.
W. T. CALMAN.—“On the Genus *Anaspides*.” *Trans. Roy. Soc. Edinburgh*, xxxviii. pt. iv.

[*Note.*—By the kindness of Mr. Sayce, the British Museum has now received specimens of the very remarkable crustacean described above. From an examination of these I am able to bear witness to the accuracy, in all essential points, of his description. I believe, however, that the difference from *Anaspides* in the flexure of the thoracic legs will prove to be more apparent than real, and I do not think that the alterations now necessary in the diagnosis of the Syncarida in any way impair the status of that group as a natural division of the Malacostraca. A discussion of these and similar points must, however, be deferred until the appearance of Mr. Sayce’s promised memoir.—W. T. CALMAN.]

LVIII.—*On some New and Curious Thysanoptera (Tubulifera) from Papua.* By RICHARD S. BAGNALL, F.E.S.

[Plates XIV. & XV.]

THE present small contribution to our knowledge of the world’s Thysanoptera is based upon four specimens collected at Dorey, Papua (New Guinea), by Dr. A. R. Wallace, F.R.S., which were presented by him to the late Mr. W. Wilson Saunders, and are now in the British Museum*. Unfortunately only one specimen of each species exists, and as they are gummed on cards the descriptions are of necessity incomplete. Dr. Wallace is under the impression that he took these creatures from under bark.

Apart from the general interest attached to insects so

* I have withheld the description of a fifth species, which is not in very good condition.

curious as the first three herein described, two of which are giants of their order, one feels that there is also a considerable historical interest in connexion with this collection, associated not only with a naturalist of world-wide fame, but with that portion of the Eastern Hemisphere whereon is based one of his most widely read works, the 'Malay Archipelago.' It is therefore a pleasure to me to have this opportunity of naming one of the most important species in this small but valuable collection in Dr. Wallace's honour.

I would also express my gratitude to Mr. C. O. Waterhouse for the kindly help rendered me in examining the collections of Thysanoptera belonging to the British Museum.

Order THYSANOPTERA.

Suborder TUBULIFERA, Haliday.

A knowledge of the species of the suborder Tubulifera outside Europe leads one to believe that it might with advantage be divided into two families, Phlæothripidæ and Idolothripidæ, the characters given by Haliday for his two genera, *Phlæothrips* and *Idolothrips*, being in themselves sufficient to warrant such a division.

Ocelli tres æquidistantes, in alatis saltem : haustellum inter coxas anticæ subdeflexum : palpi labiales ovati : alæ anticæ vena unica nonnisi inchoata (vel abbreviatæ aut nullæ). [Caput oblongum, depressum : abdomen depressum.] [Uzel. Fam. Phlæothripidæ,

Ocellus anterior remotus ab basi antennarum : haustellum basin prosterni attingens : palpi labiales papilliformes : alæ anticæ vena unica obsolete dimidiata, aut abbreviata. [Caput longissimum, teres : abdomen excavatum.] [mih. Fam. Idolothripidæ,

The Phlæothripidæ contains several genera already well known, whilst the Idolothripidæ will contain the genus *Idolothrips* (s. s.), Haliday (type species *I. marginata*, Haliday, 1852), and other allied genera which it will be necessary to establish for the reception of certain species now in my hands.

Family Idolothripidæ, mihi.

Genus MECYNOTHRIPS *, nov.

Head more or less cylindrical, three times as long as

* *Mecyno* = prolonged.

the prothorax; posterior third widened to base; fore-part much produced beyond the eyes, elevated, and bearing the anterior ocellus (protected by two strong spine-bearing tubercles) midway between the anterior margin of eyes and the extreme apex of head, which is widened for the seating of the antennæ; *cheeks* set with spine-bearing warts. *Eyes* large and prominent. *Antennæ* slender and nearly as long as the head and prothorax together, furnished with long hairs and sense-cones. *Mouth-cone*

Prothorax strongly and rugosely sculptured, raised slightly to posterior edge; a large spine-set wart at each posterior angle, and anterior angles produced, forming a pair of strong recurved horns. Fore femora much enlarged, each armed with a tooth having its base above the mid-line beneath; fore tibiæ broadened, with one or more small blunt teeth at apices and each tarsus armed with a large tooth. *Wings* present.

Abdomen very long, slender, and tapering; simple; *tube* less in length than the ninth abdominal segment*.

Species large.

Type. *Mecynothrips wallacei*, mihi.

Mecynothrips may be separated from allied genera by the abnormally produced head, the form of pronotum, the elongate ninth segment of abdomen, and the short tube. In known species of this group the tube is about three times as long as the preceding segment, which is comparatively short.

Mecynothrips wallacei, sp. n. (Pl. XIV. figs. 1-8.)

♂. *Length* 12 to 13 mm., breadth of mesothorax about 1.5 mm.

Colour shining black, juncture of meso- and metascutum and ill-defined patches on the lateral edges of intermediate abdominal segments almost blood-red. Intermediate and hind femora brownish black; all tibiæ brownish black, reddish yellow at knees, and shaded to yellow at apices; anterior tarsi reddish brown, others yellowish brown, and all tipped with black. *Antennæ* yellow, two basal and three apical joints dark brown, joints three to five tipped with the same colour.

Head long, finely and transversely striate, reticulate near base; widest at base and five times the length of its greatest width; only as wide immediately beyond eyes as width between them, but widening to the apex. *Cheeks* with a

* These generic characters are, perforce, drawn from the male sex.

number of strong spines set in warts. *Eyes* large, finely faceted, bulging anteriorly and apparently extending further on under side than on upper. *Ocelli* large, posterior pair on a line with centre of eyes and close to their margins, widely separated from the anterior ocellus, which is borne between two spine-bearing warts midway betwixt the extreme apex of head and the anterior margin of eyes. *Antennæ* inserted above the apex; joints 3 to 6 elongate and claviform, 7 and 8 fusiform. Third joint twice the length of the two basal joints together, fourth four-fifths of third, fifth three-quarters of fourth, sixth much shorter than the preceding and equal in length to the penultimate and apical joints together. *Antennal spines* at the apex of each joint very long, especially on the outer side, dark brown; *sense-cones* light and therefore inconspicuous, slender and acute, at least two on each of the joints 3 to 7, three or more on the fourth.

Prothorax one-third as long as head, disk deeply sculptured, upper surface strongly narrowed from middle to base, and two large tubercles, set low down, forming posterior angles, and another pair within and above this pair; each anterior angle produced, thus forming a very strong recurved horn, which is striated transversely and bluntly toothed near apex.

Anterior coxa not greatly enlarged, plainly reticulate, and armed with one fairly conspicuous spine. *Pterothorax* much broader than head, apparently longer than broad, with *metasternum* laterally rounded, narrowed, and armed with several strong white bristles. *Wings* present, short in comparison with the great length of the body, apparently reaching to fifth abdominal segment. *Legs* long: fore femora much enlarged and each armed with a strong tooth which has its base above the mid-line beneath; fore tibiæ broad and flattened, one or two small blunt teeth at apices and each fore tarsus armed with an exceedingly stout long tooth. Intermediate legs comparatively slender, set with a number of long light-coloured bristles.

Abdomen simple, extremely long and slender, being two-thirds the length of the whole insect and about one-eighth as wide at base as it is long. Tapered very gradually to tube. *Tube* only two-thirds the length of ninth abdominal segment and only one-third the length of head; terminal hairs short and weak, and spines on abdomen comparatively short. *Surface* transversely striate and in parts plainly reticulate.

Type. One male in British Museum (ex coll. Saunders).

Hab. Dorey, New Guinea (Wallace).

Family Phlæothripidæ, Uzel.

Genus MACROTHRIPS *, nov.

Head at least twice as long as broad and longer than the length of the prothorax; *cheeks* set with long spines. *Eyes* comparatively small; ocelli present. *Antennæ* longer than head; intermediate joints much elongated; sense-cones small and inconspicuous; hairs very small and fine, giving the joints the appearance of being naked. *Mouth-cone*
Prothorax not more than two-thirds the length of head, very abruptly raised to the posterior edge, thus throwing the disk into a vertical position; posterior edge forming a strongly sculptured corona terminated at each posterior angle by a large spine-set tubercle. *Anterior coxæ* (of male) abnormally produced; apices of fore tibiæ and tarsi armed with teeth. *Fore legs* of male greatly enlarged, femora thickened and each with a large broad-seated tubercle or blunt tooth at the base within. *Wings* present.

Abdomen comparatively broad and heavy.

Species large and massive.

Type. *M. papuensis*, mihi.

There are two carded specimens in this collection, one of each sex. At first I was inclined to regard them as the sexes of one species, but, owing to the strong and divergent characters, which, I think, cannot be only sexual, they must be described as separate species. Further, the male specimen is very much larger than the female, whereas the males in the Phlæothripidæ are almost invariably smaller than the females.

Macrothrips papuensis, sp. n. (Pl. XV. figs. 9-11.)

♂. Length 11 mm., breadth of mesothorax 2 mm.

General colour very dark brown, tibiæ and tarsi reddish brown.

Head three times as long as width of cheeks; immediately behind eyes narrower than the width across eyes, but filling out gradually and narrowing again before base; *cheeks* full and set with long white bristles or spines; vertex raised. Surface shining, finely and transversely striate, base faintly reticulate, a belt of close punctures across centre, wrinkled transversely behind eyes and narrowly sculptured between ocelli. A strong backwardly curved protuberance set with a short stout spine behind each eye. *Eyes* comparatively

* *Macro*=large.

small, finely faceted. *Ocelli* rather large, posterior pair placed immediately behind line drawn across the head at the posterior margin of the eyes. *Antennæ* separated at their base, longer than head and prothorax together. Basal joints cylindrical, first longer and wider than the second; three to six much elongated and mildly claviform, seven and eight fusiform. Third joint twice the length of basal joints together, fourth five-sixths of third, fifth three-quarters of fourth, sixth a little more than two-thirds of fifth and slightly less than the penultimate and apical joints together. *Hairs* and *sense-cones* lightly coloured, small and inconspicuous. *Prothorax* two-thirds the length of head, shortly and abruptly raised to posterior edge. Anterior edge defined, widely emarginate, and set with short inwardly directed bristles, mid-lateral and posterior marginal spines also small. Disk slightly rugose, more strongly rugose laterally; the raised edge wide and very strongly though evenly sculptured; a series of tubercles immediately behind this channelling and two large upwardly directed tubercles forming posterior angles.

Anterior *legs* very massive and outwardly set with long white bristles; *coxa* abnormally produced, forming a geniculate horn which lies over the femur; femur longer than the head, very broad and slightly flattened, produced to a blunt tooth at base within; tibia broad and flat, granulate, armed with two fairly stout teeth at apex within; tarsus armed with a long dagger-like tooth. Hind and intermediate legs simple, hirsute, two or three bristles at knee especially long. *Pterothorax* broader than prothorax and about as long as broad.

Wings coriaceous, reaching to sixth abdominal segment; fringes short, especially at apices.

Abdomen almost as broad as pterothorax and somewhat heavy; narrowing to base of tube from the sixth segment; wing-retaining bristles short. A peculiar brush-like patch on lateral edges of *metasternum*, and similar but smaller patches, composed of shorter and finer bristles, on lateral edges of the abdominal segments 2 to 6, these patches diminishing in size till those on segment 6 are scarcely perceptible. Spines light-coloured and comparatively long, terminal hairs very long. *Tube* The apex of the ninth segment is ventrally produced. *Dorsal surface* shining and very finely striate, a broad belt at base of each segment very finely reticulate.

Type. One male in British Museum (ex coll. Saunders).

Hab. Dorey, New Guinea (Wallace).

Macrothrips dubius, sp. n. (Pl. XV. figs. 12-14.)

♀. Length 7 mm., breadth of mesothorax about 1.5 mm.

Colour and general form as in *M. papuensis*.

Head only twice as long as broad, sides parallel, not narrowed behind eyes, very finely and transversely striate; postocular spines present, but tubercles absent or obsolete; space between eyes wider; ocelli similar, but posterior pair placed well above the line of the posterior margin of eyes.

Prothorax more gradually raised, with the disk less defined and the posterior edge comparatively narrower and not nearly so strongly or evenly sculptured. Anterior legs small; femora thickened, simple; each tibia with a very small straight tooth shortly before the apex within; tarsal tooth long and narrow. Head and legs more sparsely setose. Fore coxa simple, armed with a long spine. Wings reaching to seventh abdominal segment. Tube much longer than head; terminal hairs weak, but hairs on the ninth segment much longer than the tube.

Type. One female in British Museum (ex coll. Saunders).

Hab. Dorey, New Guinea (Wallace).

Genus ACANTHOTHIRIPS, Uzel.

Head longer than broad; cheeks with spine-bearing warts. Antennæ twice as long as head, intermediate joints elongate and possessing sense-cones more than usually long. Mouth-cone slender and much longer than its breadth at base. Fore femora enlarged in both sexes, and, as a rule, each furnished with one or two teeth at apex within; tarsus armed with a stout tooth. Wings present in both sexes. Male without scale at base of tube.

This genus was created by Uzel* for the reception of Reuter's *Phalothrips nodicornis* †, and more recently Hinds ‡ has described a second species, *A. magnafemoralis*, from a single male taken at Miami, Florida.

The species about to be described, *A. sanguineus*, must be provisionally regarded as belonging to this genus, though the fore femora are not really characteristic of a true *Acantho-*

* 'Monographie der Ordnung Thysanoptera,' 1895, pp. 260-261, pl. iv. fig. 28, pl. vii. fig. 145.

† "Thysanoptera Fennica, I. Tubulifera," *Bidrag till Kannedom af Finlands Natur och Folk*, 40, 1880, p. 16.

‡ "Contribution to a Monograph of the North-American Thysanoptera," *Proc. U.S. Nat. Museum*, vol. xxvi. pp. 199-200, pl. ix. figs. 93 & 94.

thrips. To meet the case I have slightly modified the above diagnoses, as it would be presumptuous to erect a new genus on such slight grounds.

Acanthothrips sanguineus, sp. n. (Pl. XV. fig. 15.)

♂. *Length* 2·9 mm.

General *colour* bright red, coxa (excepting fore pair, which are red) and all femora stone-coloured, and all tibiæ and tarsi testaceous.

Head at least one and one half times as long as wide, not much longer than prothorax. *Cheeks* gradually widening behind eyes and narrowing to the neck; set with three conspicuous lateral wart-set spines, two anterior and one posterior, and with smaller anterior spines above the extreme lateral row. *Eyes* fairly large and finely faceted. *Ocelli* on raised vertex, large, posterior pair above the centre line of eyes. *Antennæ* approximate, scarcely twice the length of head; testaceous, the three basal and two apical joints dark, joints 4 to 6 suffused near apex with brown. First joint cylindrical, second roughly globular, third obconical, dilated and much broader than the others, as long as the two basal joints together; fourth clavate, as long as third but much narrower; fifth clavate, slightly shorter than fourth; sixth to eighth almost filiform. *Spines* and *sense-cones* lightly coloured, long and slender.

Prothorax about two-thirds the length of head, widening rapidly to beyond middle and then more gradually to base. Surface roughened and dull, a few rather large rounded-off elevations unevenly scattered over dorsal surface. *Pterothorax* wider than prothorax. *Wings* long and slender. *Legs* fairly long; fore femora much broadened and each armed with a long, sharp, and slightly curved tooth from the base within; fore tibiæ bent outwards at base, rather long and slender, and thickened towards apex; tarsus armed with a sharp tooth. Hind and intermediate legs comparatively long and slender. All femora set with minute spine-set warts.

Abdomen much depressed, broadened laterally, and converging gradually from sixth segment to base of tube. *Tube* little more than one-half the length of head, hairs encircling tip short. Abdominal spines rather short and blunt.

Type. One male in British Museum (ex coll. Saunders).

Hab. Dorey, New Guinea (Wallace).

EXPLANATION OF THE PLATES.

PLATE XIV.

- Fig.* 1. *Mecynothrips wallacei*, gen. et sp. n., ♂. *a*, showing expansion of wings.
Fig. 2. Ditto. Lateral view of fore-part of head.
Fig. 3. Ditto. Antenna.
Fig. 4. Ditto. Apex of fourth antennal joint, showing sense-cones.
Fig. 5. Ditto. Prolongation of anterior thoracic angle.
Fig. 6. Ditto. Left fore leg from below.
Fig. 7. Ditto. Intermediate leg (right) from above.
Fig. 8. Ditto. Ninth abdominal segment and tube.

PLATE XV.

- Fig.* 9. *Macrothrips papuensis*, gen. et sp. n., ♂. Head, antennæ, fore legs, and prothorax.
Fig. 10. Ditto. Right fore coxa from above.
Fig. 11. Ditto. Apical prolongation of ninth abdominal segment, viewed from above (tube removed).
Fig. 12. *Macrothrips dubius*, sp. n., ♀. Right fore leg from above.
Fig. 13. Ditto. Right fore coxa from above.
Fig. 14. Ditto. Tube.
Fig. 15. *Acanthothrips sanguineus*, sp. n., ♂. Head, antennæ, fore legs, and prothorax.

LIX.—*Description of a Species of Palæmon from near Sydney, probably either a new Species or the Adult Form of Palæmon (Eupalæmon) danæ, Heller. By Dr. J. G. DE MAN, of Ierseke (Holland).*

[Plate XVI.]

? *Palæmon danæ*, Heller, *Crustaceen der Novara-Reise*, 1865, p. 120, pl. xi. fig. 3.

Palæmon ornatus, Haswell, *Catalogue of the Australian Stalk- and Sessile-eyed Crustacea*, 1882, p. 196 (nec *Pal. ornatus*, Oliv.) (teste McCulloch).

Some time ago Mr. Allan R. McCulloch, of the Australian Museum, Sydney, sent me a specimen of a species of the genus *Palæmon* from the neighbourhood of Sydney for examination, with the remark that it was a good representative of the species determined by Haswell as *Pal. ornatus*, Oliv. According to McCulloch, it is not uncommon in Queensland and New South Wales.

Our species belongs to the subgenus *Eupalæmon*, and is